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THE WEBB LAW FIRM, P.C. 700 KOPPERS BUILDING 436 SEVENTH AVENUE PITTSBURGH, PA 15219			FERNANDEZ, SUSAN EMILY	
			ART UNIT	PAPER NUMBER
			1651	

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/626,316

Applicant(s)

SALINAS ET AL.

Examiner

Susan E. Fernandez

Art Unit

1651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 21-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21-40 is/are rejected.
- 7) ☒ Claim(s) 21-28 and 37-40 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/21/05</u> . | 6) <input type="checkbox"/> Other: ____.  |

### **DETAILED ACTION**

The preliminary amendment filed July 24, 2003, has been received and entered.

Claims 21-40 are pending and are examined on the merits.

#### ***Priority***

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Chile on July 26, 2002. It is noted, however, that applicant has not filed a certified copy of the 1665-2002 application as required by 35 U.S.C. 119(b).

#### ***Claim Objections***

Claims 21-28 and 37-40 objected to because of the following informalities: For proper format, the genus and species names should be italicized. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 23 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Since the microorganisms "Tr 115" and "Tr 116" are recited in claim 23, it is essential to the invention recited in that claim. It must therefore be obtainable by a repeatable method set

Art Unit: 1651

forth in the specification or otherwise be readily available to the public. If the microorganism is not so obtainable or available, the requirements of 35 U.S.C. § 112 may be satisfied by a deposit of the microorganism. The specification does not disclose a repeatable process to obtain the microorganism and it is not apparent if the microorganism is readily available to the public.

If a deposit is made under the terms of the Budapest Treaty, then an affidavit or declaration by applicants, or a statement by an attorney of record over his or her signature and registration number, stating that the specific strain will be irrevocably and without restriction or condition released to the public upon the issuance of a patent, would satisfy the deposit requirement made herein.

If the deposit has not been made under the Budapest Treaty, then in order to certify that the deposit meets the criteria set forth in 37 C.F.R. §§ 1.801-1.809, applicants may provide assurance of compliance by an affidavit or declaration, or by a statement by an attorney of record over his or her signature and registration number, showing that:

(a) during the pendency of this application, access to the invention will be afforded to the Commissioner upon request;

(b) all restrictions upon availability to the public will be irrevocably removed upon granting of the patent;

(c) the deposit will be maintained in a public depository for a period of 30 years or 5 years after the last request or for the effective life of the patent, whichever is longer; and

(d) the deposit will be replaced if it should ever become inviable.

Applicant is directed to 37 CFR § 1.807(b), which states:

Art Unit: 1651

(b) A viability statement for each deposit of a biological material defined in paragraph (a) of this section not made under the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure must be filed in the application and must contain:

- (1) The name and address of the depository;
- (2) The name and address of the depositor;
- (3) The date of deposit;
- (4) The identity of the deposit and the accession number given by the depository;
- (5) The date of the viability test;
- (6) The procedures used to obtain a sample if the test is not done by the depository; and
- (7) A statement that the deposit is capable of reproduction.

Applicant is also directed to 37 CFR § 1.809(d) which states:

(d) For each deposit made pursuant to these regulations, the specification shall contain:

- (1) The accession number for the deposit;
- (2) The date of the deposit;
- (3) A description of the deposited biological material sufficient to specifically identify it and to permit examination; and
- (4) The name and address of the depository.

It is noted that claim 23 also recites specific organisms, "T 22" and "KRL-AG 2 (Rifai)," respectively. While this raises an issue with respect to enablement under 35 U.S.C. § 112, first paragraph, it appears that the microorganisms are publicly available without restriction. See [http://www.epa.gov/oppbppd1/biopesticides/ingredients/factsheets/factsheet\\_119202.htm](http://www.epa.gov/oppbppd1/biopesticides/ingredients/factsheets/factsheet_119202.htm). The microorganisms are therefore considered to be publicly available, unless applicant indicates otherwise. Should applicant become aware of any information to the contrary during the prosecution of this case, applicant must disclose such information to the office.

Claims 21-24 and 27-38 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Art Unit: 1651

Specifically, the claims generically recite compositions comprising fungi selected from any and all *Trichoderma* species, or methods of using or making said compositions. However, the specification does not contain an adequate description for the entire scope of this limitation.

MPEP § 2163 provides that:

The written description for a claimed genus may be satisfied through sufficient description of a representative number of species by actual reduction to practice ..., reduction to drawings ..., or by disclosure of relevant identifying characteristics, i.e., structure or other physical and/or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show the applicant was in possession of the claimed genus .... (Citation omitted.)

In the instant case, the recitation of any *Trichoderma* species generically encompasses any and all *Trichoderma* species. However, the only *Trichoderma* species described in the disclosure are *T. harzianum*, *T. viridae*, *T. polysporum*, *T. longibratum*, *T. koningii*, *T. harziano* and species identified as T 22, Tr 115, Tr 116, and KRL-AG 2 (Rifai). A holding of lack of written description over the recitation of any and all *Trichoderma species* is clearly required

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 22, 23, and 25-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 1651

Claim 22 is rendered indefinite by the recitation “natural” at line 2. It is unclear what is considered a “natural” species. Furthermore, claim 22 is confusing since it is unclear how the recitation “original stumps of *Trichoderma* species and sub species from any natural or laboratory origin” limits the composition. It is unclear whether the two or more *Trichoderma* species must be original stumps of *Trichoderma* species and subspecies from any natural or laboratory origin. Moreover, it is unclear how the species can be “original stumps of species or subspecies” since the term “species” refers to the taxonomic group of the organism. It appears that the applicant requires that the composition comprises fungi of two or more *Trichoderma* species, wherein the fungi are original stumps of *Trichoderma* species and subspecies. Finally, claim 22 is confusing since it is unclear what is referred to by the recitation “fractionated or in different proportions.” That is, it is unclear what is “fractionated” or what are in “different proportions.”

Claim 23 is indefinite since it recites species names without preceding them with genus names (viridae, polysporum, longibratum, koningii). Either “*Trichoderma*” or “*T.*” should precede each of the species names. Additionally, claim 23 recites the species “longibratum,” which appears to be the misspelling of the species *T. longibrachiatum*. The disclosure cites NZ 335107 as a document which discusses *Trichoderma longibratum* (page 4, second paragraph), however the English abstract of Document NZ 335107 refers to this species as “*Trichoderma longibrachiatum*.” Claim 23 is also indefinite since it is unclear what would be considered “variations” of the species recited. The “variations” of the recited species could even be considered any other *Trichoderma* species.

Additionally, claim 23 is rendered indefinite by the phrase “identified as T 22, Tr 115, Tr 116, KRL-AG 2 (Rifai).” First, claim 23 lists five specific species (*T. harzianum*, *T. viridae*, *T. polysporum*, *T. longibratum*, *T. koningii*), but appears to indicate that these species must be identified by only four names (T 22, Tr 115, Tr 116, KRL-AG 2 (Rifai)). It is pointed out that “T 22” and “KRL-AG 2 (Rifai)” refer to the same strain of *T. harzianum* ([http://www.epa.gov/oppbppd1/biopesticides/ingredients/factsheets/factsheet\\_119202.htm](http://www.epa.gov/oppbppd1/biopesticides/ingredients/factsheets/factsheet_119202.htm)). Note further that it is unclear whether the parentheses around “Rifai” are included to denote that “Rifai” is an alternative name for “KRL-AG 2.” The claim should clarify that “T 22” and “KRL-AG 2 (Rifai)” both refer to the *Trichoderma harzianum* Rifai strain T-22.

Given that there are only three unique names by which the species are identified, it is unclear how the two or more *Trichoderma* species can be selected from among five species when the recitation “identified as T 22, Tr 115, Tr 116, KRL-AG 2 (Rifai)” limits the selection to three species, assuming that Tr 115 and Tr 116 refer to two different species which are not *T. harzianum*. Therefore, for examination purposes, the fungi of the *Trichoderma* species meeting the requirements of this claim will be any fungi of any of the strains of *T. harzianum*, *T. viridae*, *T. polysporum*, *T. longibratum*, and *T. koningii*, and not only limited to fungi identified as T 22, Tr 115, Tr 116, and KRL-AG 2. Next, it appears that the names “T 22, Tr 115, Tr 116, KRL-AG 2 (Rifai)” are strain names, but it is pointed out that strain names are only appropriate for identifying a specific strain. Clearly a species cannot be identified by a strain name. In sum, it appears that the claim is drawn to a composition comprising fungi of two or more *Trichoderma* species selected from five species wherein the fungi may be identified by certain strain names (T 22, etc.).



Finally, claim 23 is rendered indefinite by the recitation “holoforms as Hypocrea and Podostroma” since the phrase is grammatically incorrect, and the term “holoforms” appears to be inappropriate when referring to *Trichoderma* species and appears to be inappropriate terminology. See last line of <http://www.botany.utoronto.ca/ResearchLabs/MallochLab/Malloch/Moulds/Trichoderma.html>, where the term “holomorphs” is used.

Claim 25 is indefinite since it is unclear how three live *Trichoderma* species can be selected from stumps since the term “species” refers to the taxonomic group of the organism. Furthermore, as pointed out for claim 23, “longibratum” appears to be the misspelling of the term “*longibrachiatum*.” Thus, the recitation “*Trichoderma longibratum*” should be replaced with “*Trichoderma longibrachiatum*.” Additionally, the recitation “*Trichoderma harziano*” is not a known term for a species of *Trichoderma* even though the disclosure indicates that *Trichoderma* compositions available in the market usually comprise of the species “Harziano” (page 3, second to last paragraph). Therefore, “*Trichoderma harziano*” appears to be the misspelling of the species *Trichoderma harzianum*. In conclusion, claims 25 and 26 are rejected under 35 U.S.C. 112, second paragraph. It is noted that it appears that the applicant requires in claim 25 that the composition comprises fungi selected from the stumps of the following three live *Trichoderma* species: *T. viridae*, *T. longibrachiatum*, and *T. harzianum*.

Claim 26 is indefinite since it is unclear what is defined by the proportions. First, it is not clear that the proportions refer to the proportions of the number of fungi of each species. Furthermore, it is not clear which of the numbers in each proportion recited is in reference to a

Art Unit: 1651

particular species. For instance, the proportion 10:20:70, could be referring to the proportion of *T. viridae* to *T. longibrachiatum* to *T. harzianum* (*T. viridae*:*T. longibrachiatum*:*T. harzianum*).

Claim 27 is rendered indefinite by the recitation “bacteriostatic bactericidal nature.” The definition of the term is unclear. It appears that this recitation should be replaced with the phrase “bacteriostatic or bactericidal nature” or “bacteriostatic and bactericidal nature.”

Claim 28 is indefinite since the recitation “the vegetal extract” lacks antecedent basis. Parent claim 21 does not recite a “vegetal extract.”

Claim 29 is indefinite since it is unclear what is defined by the phrase “pruning cicatrizing paint.” Furthermore, the recitation “that can or cannot have the color added” is unclear since the phrase “that can or cannot have” does not clearly indicate when having “the color added” is a requirement. Moreover, it is not clear what is referred to by “the color.” It appears that by the recitation “the color,” the applicant is referring to a dye which adds pigmentation to the composition. Thus, claims 29 and 30 are rejected under 35 U.S.C. 112, second paragraph.

Claim 30 is indefinite since the recitation “said latex” lacks antecedent basis. It is suggested that this recitation be replaced with “said latex base.” Additionally, the claim is confusing since it is not clear which composition is referred to by the recitation “said composition.” “Said composition” could be considered the composition of claim 29 or the composition according to claim 21.

Claims 31 is indefinite since the recitation “a method of use of the composition according to claim 21” does not clearly recite the use, nor does the claim clearly recite any active steps. Furthermore, as written, “a method of use of the composition according to claim 21” could be

Art Unit: 1651

read to indicate that the claim is in reference to a method of use recited in claim 21 (which is not the case) or the claim is a method of use of the composition *of* claim 21. For examination purposes, it appears that the claim is drawn to a method of imparting protection against the damage of pests wherein the composition of claim 21 is applied to plants, soils, seeds, trees and/or fruits. Additionally, claim 31 is indefinite because the recitation “the damage of a pest of insects, bacteria, fungus, viruses, and/or a combination of two or more of these agents” is not grammatically correct. Also, the recitation “combination of two or more of these agents” is unclear since the claim did not previously recite “agents.” It appears that “these agents” is referring to insects, bacteria, fungus, and viruses. Thus, claims 31-34 are rejected under 35 U.S.C. 112, second paragraph.

Claim 32 is indefinite since it is unclear what is referred to by the term “it” at line 1 of the claim. It is not clear that “it” is the composition of claim 21. Note also that claim 32 recites “a method of use of the composition according to claim 31.” Similar language is used in the preamble of claim 31. In this case, the claim can be interpreted as a method of use as recited in claim 31, or can be interpreted as a method of use of the composition recited in claim 31. For examination purposes, the former interpretation is taken. Claims 32-34 are thus rejected under 35 U.S.C. 112, second paragraph.

Claim 33 is indefinite because it recites “a method of use of the composition according to claim 32.” The claim can be interpreted as a method of use as recited in claim 31, or can be interpreted as a method of use of the composition recited in claim 31. For examination purposes, the former interpretation is taken. Claim 33 is also confusing since the recitation “the application” lacks antecedent basis. Parent claims 31 and 32 do not recite “application.”

Art Unit: 1651

Furthermore, the claim is indefinite since the definitions of “the volley technique” and “back machines” are not clear. Also, the claim is confusing since it is unclear how the application can be in seed impregnation, “directly on plants,” and “incorporated to ferti-irrigation tanks” all at the same time, since it seems to require that the composition of claim 21 is applied to seeds, plants, and ferti-irrigation tanks. Furthermore, it is not clear how application “by means of the volley technique” relates to application “by means of back machines, pulverizing machines and electrostatic machines.” It is respectfully noted that the grammar of the claim renders the claim very confusing. Thus, claims 33 and 34 are rejected under 35 U.S.C. 112, second paragraph.

Claim 34 is indefinite since the recitation “the applied dose” lacks antecedent basis. Parent claims 31-33 do not recite any “applied doses.” Additionally, claim 34 is confusing since it is unclear how water relates to the use of the composition of claim 21. It is unclear whether the “per each 600 liters of water” refers to water administered with the composition of claim 21.

Claim 35 is indefinite since the recitation “a method of use of the composition according to claim 21” does not clearly recite the “use,” nor does the claim recite any steps. Furthermore, as written, “a method of use of the composition according to claim 21” could be read to indicate that the claim is in reference to a method of use recited in claim 21 (which is not the case since claim 21 is a composition) or the claim is drawn to a method of use of the composition *of* claim 21. Additionally, claim 35 is rendered indefinite by the phrase “fungicidal bacteriostatic bactericidal,” since the definition of this phrase is unclear. Furthermore, the use of this phrase is grammatically incorrect since these terms are adjectives, though the recitation “composition serves as fungicidal bacteriostatic bactericidal” implies otherwise. Therefore, it appears that “fungicidal bacteriostatic bactericidal” should be replaced with “a fungicidal, bacteriostatic, or

Art Unit: 1651

bactericidal composition” or “a fungicidal, bacteriostatic, and bactericidal composition.” Finally, the recitation “that are responsible of fungal diseases and/or bacteriosis” is grammatically incorrect and should be replaced with “that are responsible for fungal disease and/or bacteriosis.” Claims 35 and 36 are thus rejected under 35 U.S.C. 112, second paragraph.

Claim 36 is indefinite because it recites “a method of use of the composition according to claim 35.” The claim can be interpreted as a method of use as recited in claim 35, or can be interpreted as a method of use of the composition recited in claim 35. For examination purposes, the former interpretation is taken. Additionally, claim 36 is indefinite since it is unclear how the composition “can be used.” No step is given as to how the composition is used. Also, the recitation “the preventative phase and/or the curative phase” is unclear since it is unclear what is prevented or cured.

Claim 37 is indefinite because it recites “a preparation procedure of the composition according to claim 21” since the claim can be interpreted as a preparation procedure as recited in claim 21, or interpreted as a preparation procedure of the composition *of* claim 21. The former interpretation is taken. Claim 37 is also indefinite since the recitation “the micro nutrient” lacks antecedent basis. It is suggested that the phrase be replaced with “a micro nutrient.” Thus, claims 37-40 are rejected under 35 U.S.C. 112, second paragraph.

Claim 38 is rendered indefinite by the phrase “the showing” which lacks antecedent basis. It appears that “sowing” was misspelled, thus it is suggested that “the showing” be replaced with “the initial sowing.” Additionally, it is unclear how the step of sowing comprises species. That is, what proceeds after the phrase “the showing comprises” should recite an actual step. The claim language should better clarify that in the step of initial sowing, fungi of three

Art Unit: 1651

*Trichoderma* species in the form of reproductive original units are sowed. Thus, claims 38-40 are rejected under 35 U.S.C. 112, second paragraph.

Claim 39 is indefinite since it is unclear how the species can be stumps since the term “species” refers to the taxonomic group of the organism. Thus, claims 39 and 40 are rejected under 35 U.S.C. 112, second paragraph.

Claims 39 and 40 are indefinite because, as discussed above, it appears that “longibratum” and “harziano” are misspellings and should be replaced with “longibrachiatum” and “harzianum.” Thus, claims 39 and 40 are rejected under 35 U.S.C. 112, second paragraph.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 21-23, 31, 32, 35, and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by McCabe et al. (US 4,828,600).

McCabe et al. discloses a fungal inoculant that may comprise a mixture of *Trichoderma hamatum* and *Trichoderma harzianum* (column 2, lines 38-42) and that the strains included in this mixture were “isolated natively from the field” (column 2, lines 43-44). See also column 5,

Art Unit: 1651

lines 46-50. Thus, claims 21 and 22 under examination are anticipated by McCabe et al. Note further that *T. hamatum* can be considered a “variation” of other *Trichoderma* species such as *T. viridae*, *T. polysporum*, *T. longibratum*, and *T. koningii*, since *T. hamatum* is a species of the same genus as the fungi listed above. Therefore, McCabe et al. anticipates instant claim 23.

The McCabe fungal inoculant is a fungicidal composition (column 3, lines 6-14) and may include a carrier (column 3, lines 34-35). Furthermore, the inoculant may be inserted into the furrows into which corn is planted (thus applied to soil) or coated directly on corn seeds. See column 3, lines 34-39. Thus, instant claims 31, 35, and 36 (since corn seeds are food) are taught by the reference.

Finally, the crop inoculant comprises of dried cultures of the *Trichoderma* cultures which are ground (column 4, lines 3-5). See also column 5, lines 47-50. Thus, instant claim 32 is anticipated by McCabe et al. A holding of anticipation is clearly required.

Claims 21-23, 31, 32, 35, and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Paau et al. (US 5,194,258) in light of Hermosa et al. (Applied and Environmental Microbiology, 2000, 66(5): 1890-1898) and the ATCC catalog.

Paau et al. discloses a method of protecting crop plants from fungal plant disease wherein a culture of biocontrol fungus comprising a mixture thereof of *Trichoderma* and *Gliocladium virens* is used. See abstract and claim 1 (particularly part (a)). *Gliocladium virens* is also known as *Trichoderma virens* (Hermosa et al., page 1890, first column, last paragraph). Moreover, in the discussion of *Trichoderma* strains used as biocontrol fungus (column 6, lines 64-66), the strains specified are under the ATCC numbers 24274 and 32247, and are strains of *Trichoderma*

*harzianum* (“ATCC Number: 24274” and “ATCC Number: 32247”, <http://www.atcc.org/common/catalog/numSearch/numResults.cfm>, accessed February 22, 2006). Thus, Paau et al. teaches a mixture of at least two different *Trichoderma* species and in turn anticipates instant claims 21, 22, 35, and 36. Note further that *T. virens* can be considered a “variation” of other *Trichoderma* species such as *T. viridae*, *T. polysporum*, *T. longibratum*, and *T. koningii*, since *T. virens* is a species of the same genus as the fungi listed above. Therefore, Paau et al. anticipates instant claim 23.

Furthermore, the biocontrol fungus of Paau et al. may be applied to the cultivated plant (claim 1), the seed of the plant (claim 2), or to the soil (claim 3), thus anticipating claim 31 under examination. Moreover, the biocontrol fungus of Paau et al. may be in a dry or wet formulation (column 5, lines 3-5). Thus, the reference also teaches the limitations of claim 32 under examination. Since the biocontrol fungus can be applied to seeds which are considered food, Paau et al. also anticipates instant claims 35 and 36. A holding of anticipation is clearly required.

Claims 21-23, 31, 32, 35, and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Richard (US 4,678,669).

Richard discloses a method for controlling soil-borne pathogens in plants wherein plants are treating with a mixture comprising a viable culture of *Trichoderma*, such as *Trichoderma viride* and *Trichoderma polysporum* (claims 1 and 2). Note that any plant can be considered food. Thus, instant claims 21-23, 31, 35, and 36 are anticipated by the reference. Furthermore, the composition may be applied in dry form (abstract) or may be combined with water in order to



be sprayed on the plant to be protected (claim 4). Therefore, the limitations of instant claim 32 are taught by Richard. A holding of anticipation is clearly required.

Claims 21-24, 31, 32, 35, and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Reinbergen (WO 97/31879).

Reinbergen discloses a liquid composition comprising a microbial spore or culture preparation and a solution having a colloidal nature (claim 8) wherein the microbial spore or culture preparation is selected from a group consisting of spores of cultures from *Trichoderma* and mixtures thereof (claim 10). Thus, multiple *Trichoderma* species may be included in the composition, thus anticipating claims 21 and 22 under examination. Furthermore, the *Trichoderma* species is selected from a group consisting of *T. harzianum*, *T. polysporum*, *T. konigii*, *T. viride*, and **mixtures thereof** (claim 12). Note that *T. viride* is considered an alternative spelling of *T. viridae*. Thus, Reinbergen clearly anticipates instant claims 23 and 24. Additionally, the Reinbergen invention is drawn to compositions of beneficial fungicides for the prevention, control, and/or cure of turf and plant diseases (page 3, lines 9-12). Thus, the reference anticipates claims 31 and 32. Furthermore, the Reinbergen invention can be used for food products (page 5, lines 21-23), thus teaching the limitations of instant claims 35 and 36. A holding of anticipation is clearly required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1651

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 21-23, 31, 32, 35, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCabe et al. in view of Harman (Plant Disease, 2000, 84(4): 377-393).

As discussed above, McCabe et al. anticipates claims 21-23, 31, 32, 35, and 36. However, McCabe et al. does not expressly disclose that the biological inoculant comprises *Trichoderma* species wherein the species are identified as T 22, Tr 115, Tr 116, and/or KRL-AG 2 (Rifai).

Harman discloses the *T. harzianum* strain T-22 organism, which is also known as KRL-AG2 (page 377, second column, second paragraph). This biocontrol agent controls the growth of fungi, thereby serving as a suitable substitute for other fungicides and as an agent for plant growth (page 385, first column and Figures 9 and 10).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have substituted the *T. harzianum* strain used in the McCabe invention with the

Art Unit: 1651

*T. harzianum* strain disclosed by Harman. One of ordinary skill in the art would have been motivated to do this since *T. harzianum* strain T-22 is effective against fungi and improves plant growth, thus sharing properties with the *T. harzianum* strain of the McCabe invention. Moreover, the strains are members of the same species, thus sharing other properties. One of ordinary skill would have reasonably expected that the substitution would have been suitable as a component in a biological inoculant for improving plant growth. A holding of obviousness is clearly required.

Claims 21-23 and 31-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paau et al., Hermosa et al., and the ATCC catalog in view of Harman.

As discussed above, Paau et al. in light of Hermosa et al. and the ATCC catalog anticipates claims 21-23, 31, 32, 35, and 36. However, the references do not expressly disclose that *Trichoderma* species present in the Paau composition are identified as T 22, Tr 115, Tr 116, and/or KRL-AG 2 (Rifai).

Harman discloses the *T. harzianum* strain T-22 organism, which is also known as KRL-AG2 (page 377, second column, second paragraph). This biocontrol agent controls the growth of fungi, thereby serving as a suitable substitute for other fungicide and as an agent for plant growth (page 385, first column and Figures 9 and 10).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have substituted the *T. harziaum* strain used in the Paau invention with the *T. harziaium* strain disclosed by Harman. One of ordinary skill in the art would have been motivated to do this since *T. harzianum* strain T-22 is effective against fungi and serves as a

Art Unit: 1651

biocontrol agent, thus sharing properties with the *T. harzianum* strain of the Paau invention.

Moreover, the strains are members of the same species, thus sharing other properties. One of ordinary skill would have reasonably expected that the substitution would have been suitable as a component in a composition for protecting crop plants from fungal damage.

Paau et al. also differs from the claims in that Paau et al. does not expressly disclose the use of the “volley technique” or specific types of equipment used in applying the biocontrol composition to plants/seeds/soil. Further still, Paau et al. does not teach the applied dose recited in claim 34 under examination.

At the time the invention was made, it would have been obvious to have applied the Paau composition to plants and seeds using various techniques, including the “volley technique.” One of ordinary skill in the art would have been motivated to do this since Paau et al. indicates that the composition can be sprayed on the plant seed, soil, or plant (column 5, lines 8-10), and it is clear that spraying can be performed with various types of machines. Thus, instant claim 33 is rendered obvious. Moreover, the selection of suitable doses of the biocontrol composition would have a matter of routine experimentation on the part of the artisan of ordinary skill in the art. Thus, instant claim 34 is rendered obvious.

A holding of obviousness is clearly required.

Claims 21-23, 28, 31, 32, 35, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCabe et al. or Paau et al. (Hermosa et al. & ATCC catalog) or Richard in view of Panizzi et al. (Journal of Ethnopharmacology, February 2002, 79: 165-168).

Art Unit: 1651

As discussed above, McCabe et al., Paau et al. (Hermosa et al. & ATCC catalog), and Richard each anticipate claims 21-23, 31, 32, 35, and 36. However, these references do not expressly disclose that the *Trichoderma* compositions further comprise a vegetal extract of bacteriostatic and/or bactericidal nature, or that this vegetal extract is a *Rubus sp.* hydro-alcoholic extract.

Panizzi et al. discloses that a crude methanolic extract of *Rubus ulmifolius* possesses “high antimicrobial properties on bacteria and fungi” (page 165, first column, last paragraph).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have included an alcoholic extract of *R. ulmifolius* in the *Trichoderma* compositions of McCabe et al., Paau et al., and Richard. One of ordinary skill in the art would have been motivated to do this since it would have further increased the antifungal activity of the *Trichoderma* compositions, acting on bacteria or fungi which are not acted on by the *Trichoderma* species included in the compositions. A holding of obviousness is clearly required.

Claims 21-23, 29-32, 35, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCabe et al. or Paau et al. (Hermosa et al. & ATCC catalog) or Richard in view of Howell et al. (Journal of Cotton Science, 1997, 1: 15-20).

As discussed above, McCabe et al., Paau et al. (Hermosa et al. & ATCC catalog), and Richard each anticipate claims 21-23, 31, 32, 35, and 36. However, these references do not expressly disclose that the compositions of these references include a latex base.

Howell et al. discloses the treatment of seeds with a coating of latex sticker and a *Trichoderma virens* preparation (page 17, first column, first paragraph), along with metalaxyl.

Art Unit: 1651

Thus, the treatment layers on the seeds are considered a composition comprising *T. virens* and a latex base. It was found that such a treatment was effective in acting as a fungicide (abstract).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have included latex in the compositions disclosed by McCabe et al., Paau et al. (Hermosa et al. & ATCC catalog), and Richard. One of ordinary skill in the art would have been motivated to do this since one of ordinary skill in the art would have recognized the suitability of including latex in a seed coating. Moreover, latex included in the McCabe, Paau, and Richard compositions would not have inhibited the antifungal activity of the *Trichoderma* species present in said compositions. Finally, it would have been a matter of routine experimentation to have varied the quantities of latex and *Trichoderma* organisms in the compositions, using amounts such as those recited in claim 30 under examination. A holding of obviousness is clearly required.

Claims 21-23, 31, 32, and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCabe et al. or Paau et al. ((Hermosa et al. & ATCC catalog) or Richard in view of Toet et al. (US 5,330,912) and Yeoh et al. (World Journal of Microbiology and Biotechnology, 1995, 11(6): 678-680).

As discussed above, McCabe et al., Paau et al. (Hermosa et al. & ATCC catalog), and Richard each anticipate claims 21-23, 31, 32, 35, and 36. However, these references do not expressly disclose steps for preparing the *Trichoderma* composition, wherein trays are sowed with *Trichoderma* species in the form of reproductive original units, and then harvested by mechanical means.

Toet et al. discloses a method for producing *Trichoderma harzianum* "...in a form suitable for adding directly to soil to protect plants from pathogenic fungi..." (claim 1). This method comprises inoculating (sowing) trays containing culture medium with *Trichoderma harzianum* spores. The culture is allowed to grow, and the incubated product is dried. See claim 1. Note that a full-scale plant can be constructed in order to perform this method (Example III at columns 3 and 4), wherein the trays containing the inoculated product can be emptied onto drying racks (column 4, lines 3-5). Thus, the resulting inoculated product is harvested by mechanical means.

Yeoh et al. discloses growing strains of *Trichoderma* fungi in a culture medium comprising cassava-root extract, which is a vegetal extract. See abstract.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have prepared the *Trichoderma* composition of McCabe et al., Paau et al. (Hermosa et al. & ATCC catalog), and Richard by the methods disclosed by Toet et al, wherein trays containing culture medium are inoculated with spores of all *Trichoderma* species included in the composition, and the biomass is harvested by mechanical means. Moreover, it would have been obvious to have included vegetal extracts in the culture medium. One of ordinary skill in the art would have been motivated to have used the methods disclosed by Toet et al. since they had been shown to be successful in obtaining one of the species of *Trichoderma*, and the *Trichoderma* species is obtained in a form suitable for protecting plants from pathogenic fungi, a desired property. Furthermore, one of ordinary skill in the art would have been motivated to have used vegetal extracts, such as root extracts, in the culture medium since it would have permitted *Trichoderma* growth, and was recognized as suitable for inclusion in *Trichoderma*

Art Unit: 1651

culture medium by Yeoh et al. Moreover, since the culture medium used in Toet et al. comprises of spent grain, crushed maize cobs, and bran, one of ordinary skill in the art would have expected that the extracts of these products would have contained the nutrients needed for *Trichoderma* growth. Thus, claim 37 under examination is rendered obvious. A holding of obviousness is clearly required.

Claims 21-24 and 31-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reinbergen in view of Harman.

As discussed above, Reinbergen anticipates claims 21-24, 31, 32, 35, and 36. However, Reinbergen does not expressly disclose that the *Trichoderma* species are identified as T 22, Tr 115, Tr 116, and/or KRL-AG 2 (Rifai).

Harman discloses the *T. harzianum* strain T-22 organism, which is also known as KRL-AG2 (page 377, second column, second paragraph). This biocontrol agent controls the growth of fungi, thereby serving as a suitable substitute for other fungicide and as an agent for plant growth (page 385, first column and Figures 9 and 10).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have used the *T. harzianum* strain T-22 disclosed by Harman in the Reinbergen composition. One of ordinary skill in the art would have been motivated to do this since *T. harzianum* strain T-22 is effective against fungi and serves as a biocontrol agent, which are properties of the Reinbergen compositions. Moreover, the person of ordinary skill in the art would have recognized the suitability of using any strain of the *T. harzianum* species in the Reinbergen composition.



Reinbergen also differs from the claims in that Reinbergen does not expressly disclose the use of the “volley technique” or specific types of equipment used in applying the biocontrol composition to plants/seeds/soil. Further still, Reinbergen does not teach the applied dose recited in claim 34 under examination.

At the time the invention was made, it would have been obvious to have applied the Reinbergen composition to plants and seeds using various techniques, including the “volley technique.” One of ordinary skill in the art would have been motivated to do this since Reinbergen indicates that the composition (marketed as Companion<sup>TM</sup> and Companion 2<sup>TM</sup>) can be sprayed on plots (page 14, lines 7-9 and lines 19-20), and it is clear that spraying can be performed with various types of machines. Thus, instant claim 33 is rendered obvious. Moreover, the selection of suitable doses of the Reinbergen composition would have been a matter of routine experimentation on the part of the artisan of ordinary skill in the art. Thus, instant claim 34 is rendered obvious.

A holding of obviousness is clearly required.

Claims 21-26, 31, 32, 35, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reinbergen in view of Gromovykh et al. (Proceedings of 1999 Annual International Research Conference on Methyl Bromide Alternatives and Emissions Reductions, <http://www.epa.gov/ozone/mbr/airc/1999/>, last updated June 6, 2002).

As discussed above, Reinbergen anticipates claims 21-24, 31, 32, 35, and 36. However, Reinbergen does not expressly disclose that the *Trichoderma longibrachiatum* is included in the mixture of *Trichoderma* species included in the Reinbergen liquid composition, wherein the

Art Unit: 1651

Reinbergen liquid composition already teaches a mixture comprising *T. viridae*, and *T. harzianum*.

Gromovkykh et al. discloses that five of the most promising isolates against certain pathogenic fungi were identified. These five strains corresponded to the species *T. viride* (*T. viridae*), *T. harzianum*, and *T. longibrachiatum*, among others. See first page, "Materials and methods." All of these tested strains demonstrated antagonistic activity against a particular pathogenic fungus species (second page, "Results and discussion").

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have included *T. longibrachiatum* as one of the *Trichoderma* species in the mixture included in the Reinbergen liquid composition. One of ordinary skill in the art would have been motivated to do this because of the antifungal properties exhibited by *T. longibrachiatum*, wherein said antifungal properties are the properties desired for the Reinbergen liquid composition. Additionally, the selection of particular proportions of the different *Trichoderma* species present in the Reinbergen composition would have been a routine experimentation on the part of the artisan of ordinary skill in the art. Therefore, claims 25 and 26 are rendered obvious by the references. A holding of obviousness is clearly required.

Claims 21-28, 31, 32, 35, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reinbergen and Gromovkykh et al. as applied to claims 21-26, 31, 32, 35, and 36 above, and further in view of Panizzi et al.

As discussed above, Reinbergen and Gromovkykh et al. render claims 21-26, 31, 32, 35, and 36 obvious. However, these references do not expressly disclose that the *Trichoderma*

Art Unit: 1651

composition further comprises a vegetal extract of bacteriostatic and/or bactericidal nature, or that this vegetal extract is a *Rubus sp.* hydro-alcoholic extract.

Panizzi et al. discloses that a crude methanolic extract of *Rubus ulmifolius* possesses “high antimicrobial properties on bacteria and fungi” (page 165, first column, last paragraph).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have included an alcoholic extract of *R. ulmifolius* in the Reinbergen *Trichoderma* composition. One of ordinary skill in the art would have been motivated to do this since it would have further increased the antifungal activity of the *Trichoderma* composition, acting on bacteria or fungi which are not acted on by the *Trichoderma* species included in the composition. A holding of obviousness is clearly required.

Claims 21-24, 29, 30, 31, 32, 35, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reinbergen in view of Howell et al.

As discussed above, Reinbergen anticipates claims 21-24, 31, 32, 35, and 36. However, Reinbergen does not expressly disclose that the *Trichoderma* composition includes a latex base.

Howell et al. discloses the treatment of seeds with a coating of latex sticker and a *Trichoderma virens* preparation (page 17, first column, first paragraph), along with metalaxyl. Thus, the treatment layers on the seeds are considered a composition comprising *T. virens* and a latex base. It was found that such a treatment was effective in acting as a fungicide (abstract).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to have included latex in the *Trichoderma* composition disclosed by Reinbergen. One of ordinary skill in the art would have been motivated to do this since one of ordinary skill in the

Art Unit: 1651

art would have recognized the suitability of including latex in a seed coating. Moreover, latex included in the composition would not have inhibited the antifungal activity of the *Trichoderma* species present in said composition. Finally, it would have been a matter of routine experimentation to have varied the quantities of latex and *Trichoderma* organisms in the compositions, using amounts such as those recited in claim 30 under examination. A holding of obviousness is clearly required.

Claims 21-26, 31, 32, and 35-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reinbergen and Gromovkyh et al as applied to claims 21-26, 31, 32, 35, and 36 above, and further in view of Toet et al. and Yeoh et al.

As discussed above, Reinbergen and Gromovkyh et al render claims 21-26, 31, 32, 35, and 36 obvious. However, Reinbergen does not expressly disclose steps for preparing the *Trichoderma* composition, wherein trays are sowed with *Trichoderma* species in the form of reproductive original units, and then harvested by mechanical means.

Toet et al. discloses a method for producing *Trichoderma harzianum* "...in a form suitable for adding directly to soil to protect plants from pathogenic fungi..." (claim 1). This method comprises inoculating (sowing) trays containing culture medium with *Trichoderma harzianum* spores. The culture is allowed to grow, and the incubated product is dried. See claim 1. Note that a full-scale plant can be constructed in order to perform this method (Example III at columns 3 and 4), wherein the trays containing the inoculated product can be emptied onto drying racks (column 4, lines 3-5). Thus, the resulting inoculated product is harvested by mechanical means.

Yeoh et al. discloses growing strains of *Trichoderma* fungi in a culture medium comprising cassava-root extract, which is a vegetal extract. See abstract.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have prepared the Reinbergen *Trichoderma* composition by the methods disclosed by Toet et al, wherein trays containing culture medium are inoculated with spores of all *Trichoderma* species included in the composition, and the biomass is harvested by mechanical means. Moreover, it would have been obvious to have included vegetal extracts in the culture medium. One of ordinary skill in the art would have been motivated to have used the methods disclosed by Toet et al. since these had been shown to be successful in obtaining one of the species included in the Reinbergen composition, *Trichoderma harzianum*, and the *Trichoderma* species is obtained in a form suitable for protecting plants from pathogenic fungi, a desired property. Furthermore, one of ordinary skill in the art would have been motivated to have used vegetal extracts, such as root extracts, in the culture medium since it would have permitted *Trichoderma* growth, and was recognized as being suitable for inclusion in *Trichoderma* culture medium by Yeoh et al. Moreover, since the culture medium used in Toet et al. comprises of spent grain, crushed maize cobs, and bran, one of ordinary skill in the art would have expected that the extracts of these products would have contained the nutrients needed for *Trichoderma* growth. Thus, claims 37-39 under examination are rendered obvious. Additionally, it would have been a matter of routine experimentation to have varied the quantities of each species present in the prepared composition, including the quantities recited in claim 40 under examination. A holding of obviousness is clearly required.

Art Unit: 1651

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan E. Fernandez whose telephone number is (571) 272-3444.


The examiner can normally be reached on Mon-Fri 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Wityshyn can be reached on (571) 272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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